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**Determination of Effect on Essential Fish Habitat from  
DWH Beach Enhancement Restoration Project  
Last updated: May 29, 2015**

**I. Background and Proposed Restoration Action**

This project involves implementing roadway safety improvements in the Davis Bayou Area of Gulf Islands National Seashore in Ocean Springs, MS (see Figure 1). Two intra-project action alternatives were developed. The National Park Service Preferred Alternative (Alternative B in the Environmental Assessment) is to widen the existing road surface on Park Road and Robert McGhee Road to accommodate multiple-use pedestrian/bicycle lanes. The other alternative (Alternative C in the Environmental Assessment) would reduce the amount of automobile traffic in the park by limiting access to VFW Road during certain times of the day (See Figure 2). Alternative C would not involve work in Essential Fish Habitat – it is too far inland. Therefore, only Alternative B is discussed in this assessment.



Figure 1 – Regional map showing project location in Mississippi



Figure 2 – Location of Action Alternatives B and C

Members of the public – including day users, overnight campers, and commuters just passing through – use these roads as walking, jogging, bicycling, and motor vehicle traffic routes. Motorists are known to drive at excessive speeds that place non-motorized visitors at risk. Simultaneous use of the roads by all user groups results in a high probability for accidents, visitor conflicts, and potentially unsafe conditions for pedestrians, bicyclists, and motorists. Pedestrians and bicyclists using the road corridors within the park area have limited space to maneuver to avoid approaching motorists, as there is little-to-no shoulder space. Additionally, wetlands adjacent to the roadway minimize the extent to which pedestrians and bicyclists can negotiate off-road to avoid collisions with motorists.

Under Alternative B, the road surface of Park Road (2.17 miles) and Robert McGhee Road (0.82 mile) would be widened to accommodate multi-use travel lanes on one or both sides of the road (Figure 3). The new road configuration would widen the existing 22-foot (ft) roadway to an up-to 36-ft paved surface that includes two 11-ft motor vehicle lanes flanked by 2-ft buffers and 5-ft multiple-use lanes. There would also be 4-ft non-paved shoulders flanking the multiple use lanes. Beyond the non-paved shoulders, construction would also include fill in

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 many areas, plus five additional feet of clearing, as depicted in the figure below. Retaining walls could also be constructed in areas where the road is elevated higher than the surrounding landforms.

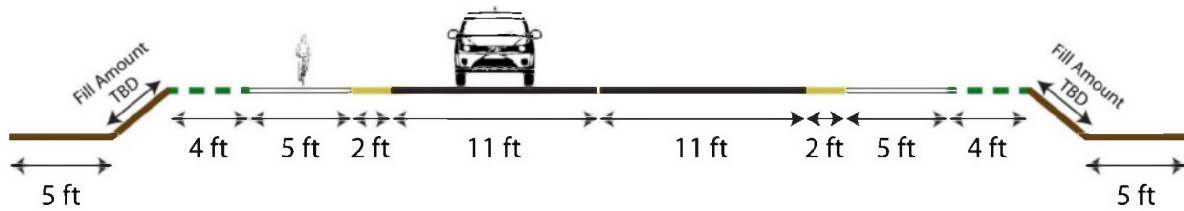


Figure 3 – Depiction of the road corridor after project completion

In addition, two traffic-calming medians (e.g., 10-ft wide ellipses) would be installed along the first mile of Park Road, formal entrance park signs would be installed at the VFW Road/Knapp Road intersection, and the entrance sign currently located 150 feet south of the Park Road/U.S. Route 90 intersection would be relocated closer to the intersection, making the sign more visible to passing motorists on U.S. Route 90.

The portion of the project that could impact EFH is on Park Road and Robert McGhee Road where the roads cross east Stark Bayou and Stark Bayou, respectively. See Figures 4, 5, and 6 below.

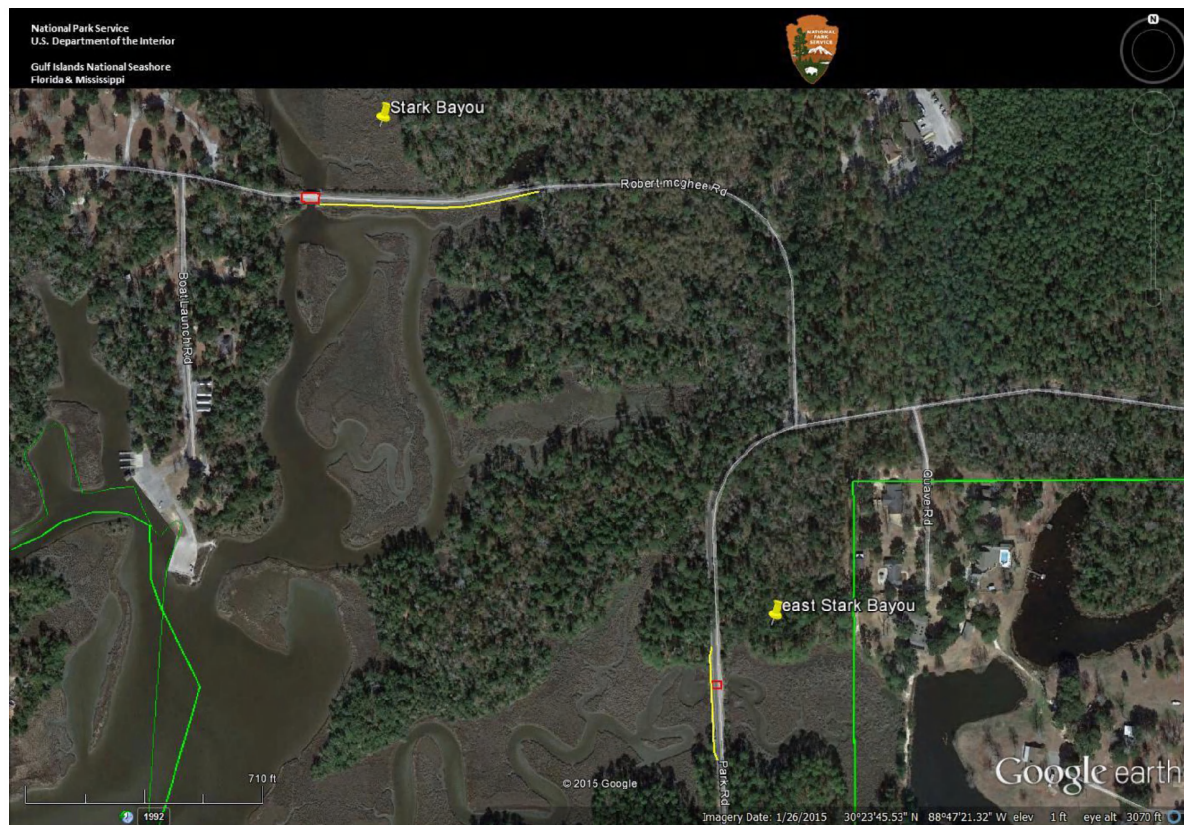


Figure 4 – Project work locations over EFH in Stark Bayou and east Stark Bayou

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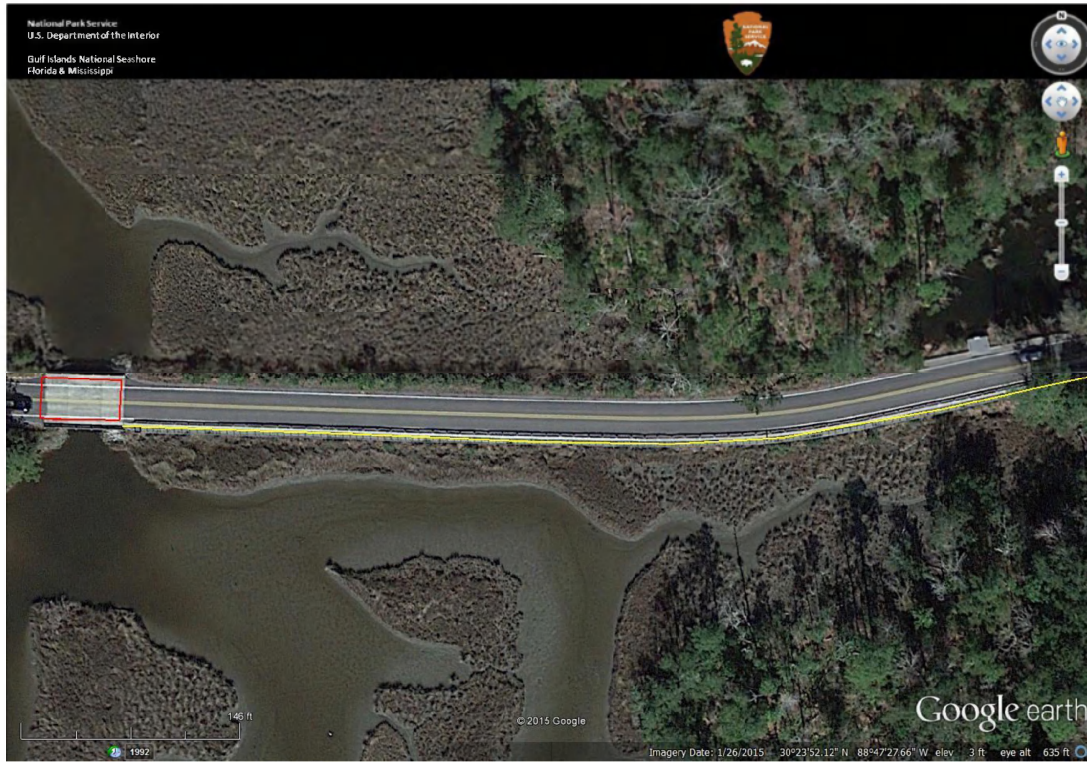


Figure 5 – Project location near EFH in Stark Bayou on Robert McGhee Rd.

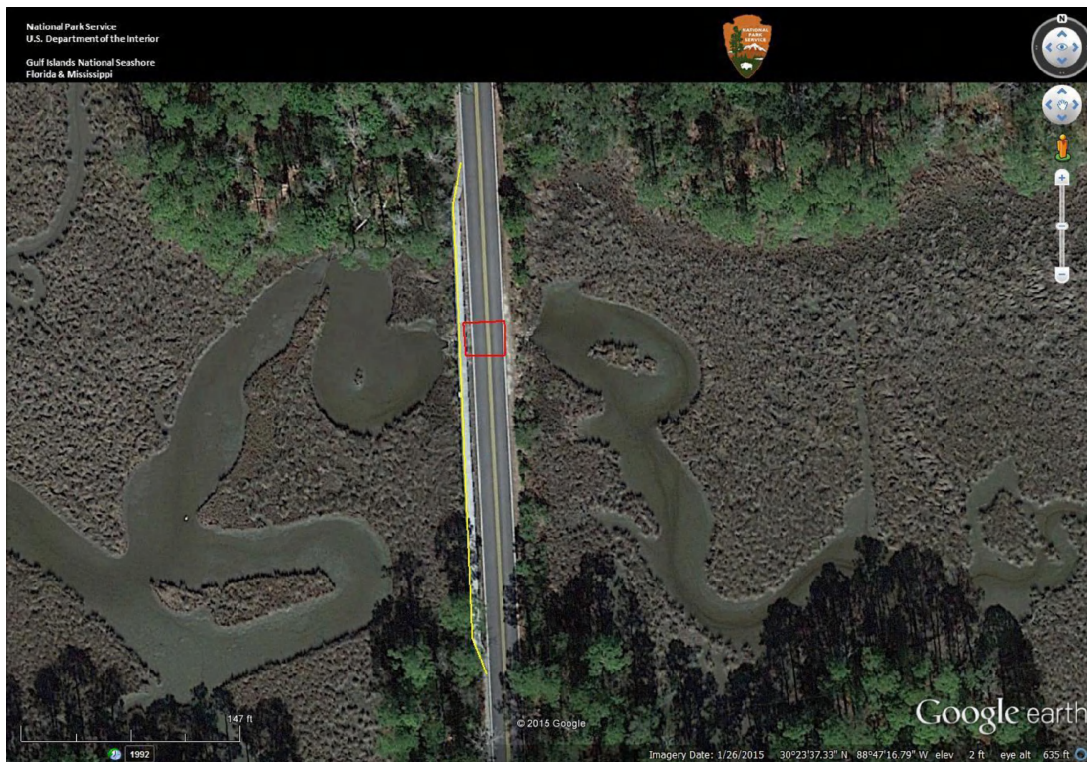


Figure 6 – Project location near EFH in east Stark Bayou on Park Rd.

## 2.0 Essential Fish Habitat

The 1996 amendments to the Magnuson-Stevens Act set forth a mandate for NMFS, regional Fishery Management Councils (FMC), and other Federal agencies to identify and protect EFH of economically important marine and estuarine fisheries. To achieve this goal, suitable fishery habitats need to be maintained. EFH in the area of proposed action is identified and described for various life stages of managed fish and shellfish in the northern Gulf (GMFMC 1998). A provision of the Magnuson-Stevens Act requires that FMC's identify and protect EFH for every species managed by a Fishery Management Plan (FMP) (U.S.C. 1853(a)(7)). There are FMP's in the Gulf region for shrimp, red drum, reef fishes, coastal migratory pelagics, and highly migratory species (e.g., sharks). Table 1 includes species from Ecoregion 3 that will be found in emergent marsh and soft bottom habitat – the two relevant essential fish habitats within the area of proposed action.

**Table 1. EFH within the vicinity of the Proposed Area of Effect – Emergent Marsh and Soft Bottom habitat**

COMMON NAME	SPECIES	LIFESTAGE
Red Drum	<i>Sciaenops ocellatus</i>	Larvae – Adults
Gray Snapper	<i>Lutjanus griseus</i>	Adults
Lane Snapper	<i>Lutjanus synagris</i>	Early and Late Juvenile
Brown shrimp	<i>Penaues aztecus</i>	Early Juvenile
White shrimp	<i>Penaues setiferus</i>	Early Juvenile

### Tidal Salt Marshes (includes emergent marsh and soft bottom):

The salt marsh community (E2EM1) in the Davis Bayou Area is comprised of the three arms of Davis Bayou. Within the study corridor, the tidal salt marshes are East Davis (AKA east Stark) Bayou crossed by Park Road, and Davis (AKA Stark) Bayou crossed by Robert McGhee Road. These estuarine emergent wetlands are composed of wet and salt tolerant grasses and sedges growing along the fringe of intertidal flats that are exposed to the ebb and flow of the daily fluctuating ocean tides. This community occurs in relatively protected niches and drainage basins and creates a transition from open water to the emerging land. Because this vegetation community must tolerate daily flooding and saline conditions, relatively few species grow in this environment, and the subtypes or zones within this community are often composed of nearly pure stands of a single species (NPS 2014). 52 acres of tidal marsh is present in the Davis Bayou Area (NPS 2000).

## 3.0 Assessment of Impacts and Mitigation Measures

Impacts to EFH from the project could be caused by impacts to water quality, surface water hydrology, and available emergent marsh and soft bottom habitat. Impacts to water quality could be caused by erosion from construction activities (ground disturbance and the addition of fill) and by leaks or spills of fuels or fluids from construction equipment and vehicles. Because of the proven effectiveness of best management practices (BMP), the impacts to water quality from the discharge of sediment to waterways and contamination from equipment and vehicles would be short-term, minor and adverse. BMPs that will be employed to protect water quality include:

- Buffers between areas of soil disturbance and wetlands or waterways would be planned and maintained as possible.
- Erosion-control practices such as sediment traps, erosion check screen filters, and hydro mulch would be used.

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- Any hazardous waste that is generated in the project area would be promptly removed and properly disposed of.
- Equipment would be inspected for leaks of oil, fuels, or hydraulic fluids before and during use to prevent soil and water contamination. Contractors would be required to implement a plan to promptly clean up any leaks or spills from equipment, such as hydraulic fluid, oil, fuel, or antifreeze.
- Onsite fueling and maintenance would be minimized. If these activities could not be avoided, fuels and other fluids would be stored in a restricted/designated area, and fueling and maintenance would be performed in designated areas that are bermed and lined to contain spills. Provisions for the containment of spills and the removal and safe disposal of contaminated materials, including soil, would be required.
- Action would be consistent with state water quality standards and Clean Water Act Section 401 certification requirements.
- Slopes of newly filled areas would be vegetated and properly maintained to avoid adverse impacts on aquatic environments.

Impacts to hydrology could be caused by the footprint of the newly added fill in the emergent marsh adjacent to the roads. Fill could be placed on both sides of each road<sup>1</sup>. Each new multi-use lane would create a footprint into the marsh of up to 18 ft (2-ft buffer, 5-ft lane, 4-ft buffer, and 7-ft (assumed) horizontal distance to the toe of the slope (see Figure 3). (Contrary to what is presented in Figure 3, there will be no additional area impacted by heavy equipment in the marsh since all heavy equipment will operate from the road surface above.) The Environmental Assessment for this project conservatively assumed a “study corridor” of 122 ft – i.e. 22 ft of existing road plus 50 ft in both directions – with the amount of estuarine emergent marsh in this study corridor totaling 1.9 acres. The actual amount of estuarine emergent marsh to be covered with fill, however, is 0.65 acres – 0.42 acres at Robert McGhee Rd and 0.23 acres at Park Rd.<sup>1</sup> These impacts would be long-term, minor and adverse. The impacts would be minor because a) such a small area – 1.2% of the entire tidal marsh acreage in the Davis Bayou Area (52 acres) – would be covered, and b) the impacts will be mitigated.

The mitigation being proposed for these impacts is within the NPS boundary of the Davis Bayou Area (see Figure 7). Since 0.65 acres will be destroyed, 1.5 times that – i.e., 0.98 acres, or one acre – must be created to mitigate those impacts. For the impacts along Park Road, this equals 0.35 acres (i.e., 1.5 x 0.23), and for the impacts assumed along Robert McGhee Road, this equals 0.65 acres (i.e., 1.5 x 0.42). NPS proposes to mitigate the impacts from the current phase of the project – i.e., along Park Road – now, and mitigate the remainder when the Robert McGhee Road portion of the project is funded and implemented. NPS would like to create 0.35 acres in the 1.5-acre polygon in Figure 7 (current thinking is to work in the N end and along the W edge of the polygon). The remaining 0.65 acres could be created either in the rest of the 1.5-acre polygon or in the 0.9-acre polygon, or both.

Details such as final elevations of created marsh terraces and exact methodology will be determined later during the engineering and design phase of project implementation, as will exact locations of areas that will be dredged. However, some methodology can be prescribed now. For marsh elevations, adjacent healthy marsh will be surveyed and a compaction curve will be developed in order to determine the initial elevations that will be needed so that proper marsh elevations will result after compaction and dewatering occurs. Containment dikes will be used during marsh creation to force the sediments to “stack” properly. These dikes will be breached once sediments have consolidated and revegetated sufficiently; this will ensure that proper tidal circulation is restored in this area. Additionally, efforts to create a tidal creek within the mitigation area to improve fishery productivity will be identified during engineering and design. A small “section dredge” will be used to undertake this work, but a “bucket dredge” will be needed to create the containment dikes.

Approximately three acres of sediment material borrow areas will be needed to provide enough material to create 0.35 and 0.65 acres of marsh. When the 1.5-acre and the 0.9 acre polygons are added together and one acre of created marsh is subtracted from them, this leaves 1.4 acres there for dredging. The remaining 1.6 acres will be identified later, but could include regularly dredged channels (see Figure 8). Areas to be dredged would be devoid of submerged aquatic vegetation or shell bottoms (living or dead). Additionally, areas to be dredged would

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<sup>1</sup> Until the Robert McGhee Road portion of the project is designed, it is unknown whether the bike-pedestrian lanes there will be created by widening the road by adding fill along both sides of the road, or by building new, suspended boardwalks using pilings, cantilevers, or even fill in some areas. As such, the worst-case scenario is assumed – i.e. filling/covering an area 0.42 acres in size, requiring 0.65 acres of created marsh.

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generally be deeper than the photic zone (i.e., approximately four feet). Optimally, approximately two to three feet of material could be removed from these broader areas rather than dredging a lot of material from a few big "holes."

Planting Plan details will be determined before mitigation is implemented; however, some details can be prescribed now. Plant material will be purchased from nurseries and will be planted on no greater than six-ft centers. Only species and forms (e.g., sprigs, bare roots, plugs, gallon containers) that are appropriate for the sites will be planted. Plant material will meet the required genetic specifications. Planting will occur after the dredged material has had time to consolidate sufficiently (approximately three months). Performance criteria include: 1) having 80% or more of the created marsh to be within six inches of the desired elevation one calendar year and three calendar years after placement; 2) having at least 75% vegetative coverage one year after planting and 90% or higher coverage within three years. Vegetative coverage assessments will be designed later, but would involve something in the range of 20 two-meter randomly distributed plots over the one-acre area. Photo-monitoring of plots should also occur and any use of the area by animals would be reported.

Additional compliance:

For both the in-water portion of this bike-pedestrian lane project and for the mitigation project(s) that creates marsh, the proposed discharge of dredged or fill material into waters of the United States, including wetlands, or work affecting navigable waters associated with this project will continue to be coordinated with the USACE pursuant to the Clean Water Act Section 404 and Rivers and Harbors Act (CWA/RHA). The Mobile Corps District was contacted in 2014 for a preliminary discussion of the permitting process. Continued coordination with USACE and final authorization pursuant to CWA/RHA will be completed prior to project implementation once final design is completed.

NPS would apply for a Mississippi Coastal Wetland Protection Act Permit and authorization by the USACE. Pursuant to the Coastal Zone Management Act of 1972, federal activities must be consistent to the maximum extent practicable with the federally approved coastal management programs for states where the activities would affect a coastal use or resource. Federal Trustees are submitting consistency determinations for state review coincident with public review of this document. NPS would adhere to all conditions of the Mississippi Coastal Wetland Protection Act permit and the USACE permit.

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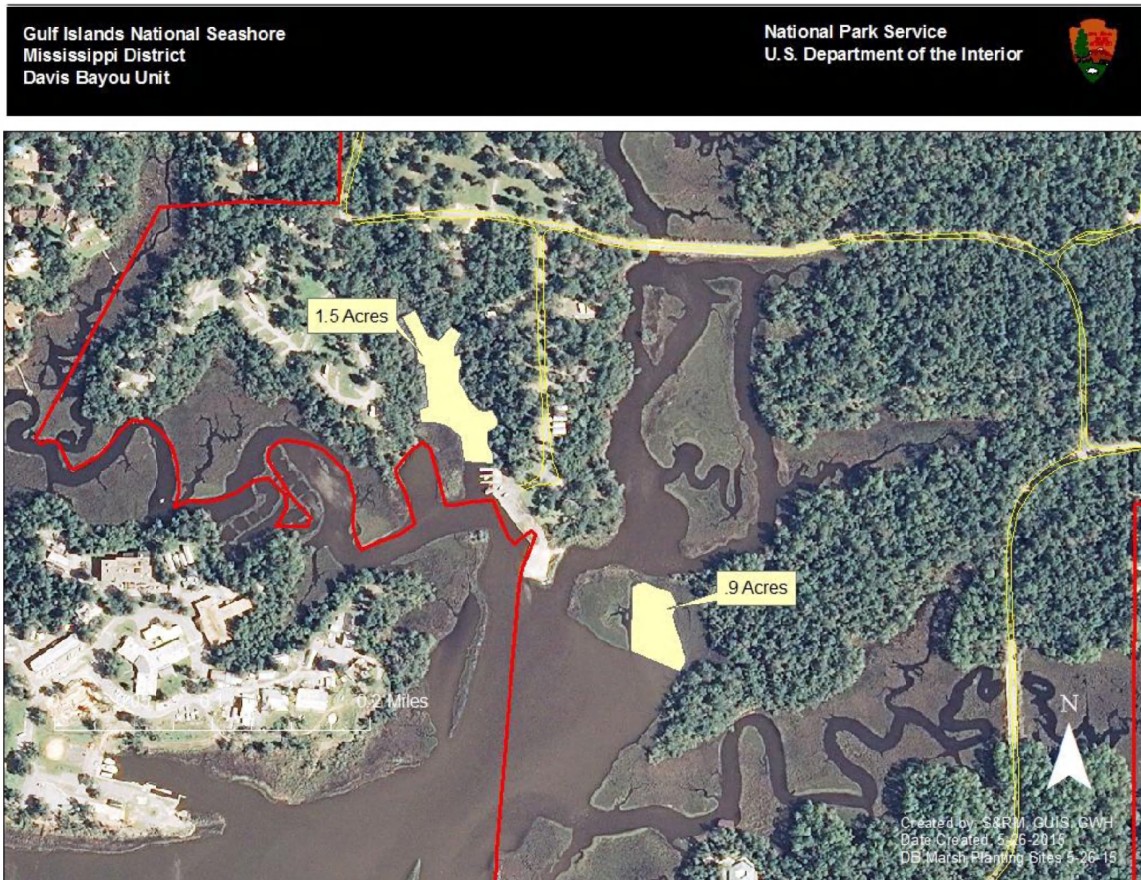
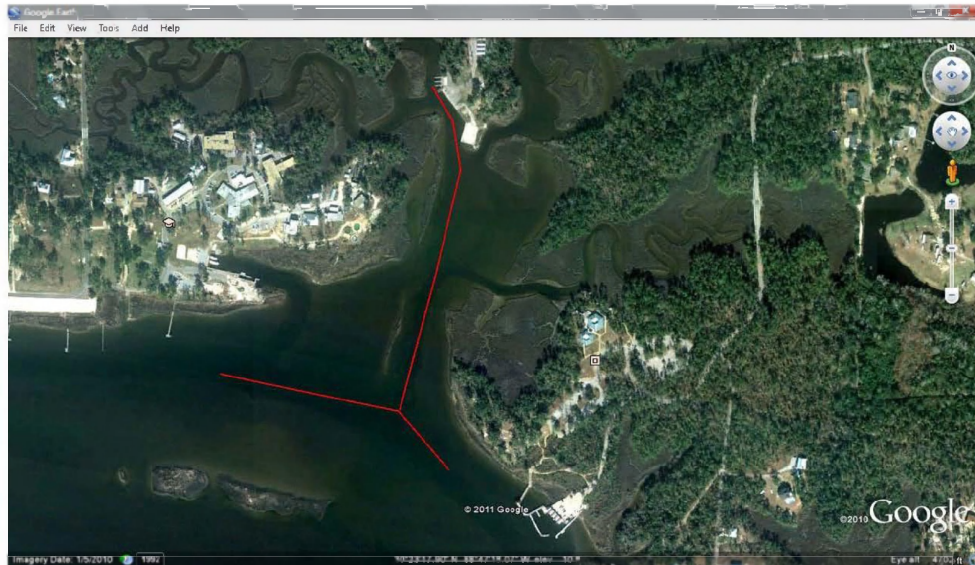


Figure 7 – Proposed locations for marsh creation mitigation projects (red line is park boundary).





This is the approximate alignment of the dredging in Stark and Davis Bayous. Davis will be “spot” dredged to remove some high spots in the existing channel. Stark will be dredged from the Davis navigation channel northward to the boat launch in the Park.

Figure 8: regularly dredged channels that can provide some of the materials for the created marsh.

#### 4.0 Conclusions

Adverse impacts from this project on EFH will be short-term minor and adverse for water quality, and long-term, minor and adverse for hydrology and emergent marsh habitat. BMPs will be used to minimize short-term impacts. The creation of one acre of marsh will occur within the Davis Bayou Area of the park to mitigate the destruction of 0.65 acres. The mitigation required for the first phase of this project – along Park Road only – will occur first: 0.35 acres of marsh will be created. The remainder (up to 0.65 acres) will be created when the Robert McGhee Road portion of the project is funded and implemented.